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"*To the solid ground*
Of Nature trusts the mind which builds for aye."—WORDSWORTH.

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CAMBRIDGE STANDARDS OF VALUE.

Cambridge Essays on Education. Edited by Dr. A. C. Benson. With an Introduction by the Rt. Hon. Viscount Bryce. Pp. xix + 232. (Cambridge: At the University Press, 1917.) Price 7*s.* 6*d.* net.

THESE essays, with one notable exception, constitute an appreciation and a defence of a classical education. They set forth all that is best in classical and literary studies, and abound in stimulating thoughts and provocative theories. But, with one exception, the writers have no great belief in scientific studies; though Cambridge essays, they do not represent Cambridge thought, of which Mr. Bateson assures us the dominant forces come from the scientific school. Even the Dean of St. Paul's, who has natural leanings towards science, pronounces scientific studies to be thin—like the air on the mountain-tops—whilst he admits that they are pure and bracing. But with all this fear of science there is in most of the essays the feeling of an unfulfilled hope, which is not allayed by the somewhat forced and artificial methods with which the writers seek to stimulate interest in literary studies. They have great possessions, but something is lacking; that something, students of science may claim, is the outlook of science.

It will be admitted that the advent of such mighty things as modern scientific discoveries might be expected to awaken a new curiosity and bring with it a new revelation. But unfortunately the outlook and aims of science are little understood and are confused with other motives. Mr. Paton, for example, declares science to be the embodiment of materialism. The last century, with all its brilliant achievement in scientific discovery, was, he tells us, spiritually a failure. He is probably mixing up science with what he sees around him in business. Sir John McClure, who writes on vocational training and is so distrustful of it, does the same. He quotes with approval from the speech which Mr. Hichens addressed to the Headmasters' Association. But Mr. Hichens is not thinking of science; he is thinking of "business." For high business capacity he does not want a man trained in science; he wants him trained in classics, to be a man of ability and of moral strength of character. This is one type. For research he will employ a man trained in science.

The difference arises from the existence of these two types of men; and these types, Mr. Bateson candidly tells us, scarcely know each other—their outlook and methods are diverse, and this diversity affects thought, ways of looking at things, and mental interests. One type is possessive, as Mr. Russell might say, the other creative. Mr. Hichens is, naturally enough, thinking of the conventional qualifications of the governing type; but in the changing order of affairs it is not so certain that this type will be able to deal with the new relationships which are in rapid process of development. At any rate, men of this kind are in full power in the State, in Government offices, and in many business affairs, and they have not prevented strikes, or wars, or revolutions; and at the moment their methods and aims and powers are in a fair way towards paralysis. Who can tell whether the men of research will not be called from their laboratory to save and reconstruct the State?

"The rapture of the forward view," which Dean Inge quotes as belonging to science more than to any other study, is much needed to-day if we are to be saved from disaster. Dr. Inge discusses many important educational problems. He reminds us that the aims of education should be the knowledge, not of facts, but of the relative value of them, and he insists on training the reasoning faculties, and not in placing faith in intuition. He even traces the instinct of acquisitiveness, so prevalent amongst the governing and possessive classes, to the absence of trained reason. No one, he says, who had formed any reasonable estimate of the relative values of life would devote his time to exploiting his neighbours. It is a question, however, whether too much reli-

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ance may not be placed on reasoning—for the value of things, which are the premises, may change.

Dr. Inge apparently does not believe in change of values, and is thereby led to distrust democracy and pin his faith to aristocraticism. Democracy in education, he tells us, is a leveller, and its tendency is to level down all superiorities in the name of equality and good fellowship. This may be the appearance of it under its present state of bondage, but it is not the true, effective democracy. Democracy in education means the opening of education to everyone, and it is along these lines that reconstruction of education must follow. At present the education and codes of the public schools are aristocratic. Democracy means the opening of education to every boy or girl, the raising of the weakest, the multiplying of educational opportunities to give scope for individual capacities; it means the introduction of scientific and technical studies, and the extension of the method to literature and to art. Democracy means change of values, and this change is at the root of science education. . Mr. Bateson, in a fine passage, reveals the vital influence of science.

> Natural knowledge is destined to give man not only a direct control of the material world, but new interpretations of higher problems. Those who have grasped the meaning of science, especially biological science, are feeling after new rules of conduct.

He continues :—

> The general ignorance of science has lasted so long that we have virtually two codes of right and duty, that founded on natural truth and that emanating from tradition, which almost alone finds public expression in this country. Whether we look at the cruelty which passes for justice in our criminal courts, at the prolongation of suffering which custom demands as a part of medical ethics, at this very question of education, or indeed at any problem of social life, we see ahead and know that science proclaims wiser and gentler creeds.

The two essays of Dr. Inge and Mr. Bateson should be carefully studied.

Dr. Benson writes pleasantly and suggestively on imagination, or, strictly speaking, literary imagination, not the imagination which science provokes; and the Headmaster of Sherborne follows with an essay on the place of literature in education. Both essays are enjoyable reading. We wish, however, that Dr. Benson would add scientific and technical work to his curriculum, with workshops laboratory, agriculture, and his own methods of literary and artistic teaching; then he would have no need for hobbies, and the "way of play" would be transferred to the more delightful "way of work."

Space will only permit of brief reference to the other important questions discussed in these essays. The neglect of science, the alarming absence of the science outlook in the State services, the cramping effects of examinations, are the agitating questions of the day. Uninspired by the science outlook, the Consultative Committee of the Board of Education gives as a reason for reconstruction that men must continue to work in order that our great firms may make money, or wages will go down; and knowing that the Board itself had killed the people's higher grade schools, it makes the remarkable statement that the scholarship method of passing from the elementary to the secondary schools is too firmly rooted in the mind of the country to be dislodged. We believe that these opinions are due to the neglect of science and to the absence of men of the scientific type. But how can we get scientific ideas into the life of the nation? We agree with Mr. Bateson that to replace Greek by chemistry, or to force "science for all" into the public schools, is only playing with the question. What is wanted is that science on a large and comprehensive practical and technical scale should be taught in the schools, so that boys of scientific aptitude and tastes may revel in inspiring fields of research and study. The schools would then turn out a race of men with new ideals inspired by the "onward march." Such men would be able to govern, but in a different way.

WEBB'S "CELESTIAL OBJECTS."

Celestial Objects for Common Telescopes. By the Rev. T. W. Webb. Sixth edition, thoroughly revised by the Rev. T. E. Espin. Vol. i., pp. xx+253; vol. ii., pp. viii+320. (London: Longmans, Green, and Co., 1917.) Price 7*s*. 6*d*. net each.

WHEN the first part of the fifth edition of this book appeared in 1893 we were not alone in finding fault with the way in which, to avoid alteration of Webb's work, most of the correction, revision, and amplification was relegated to an irritating series of footnotes. Old readers probably had an earlier edition if they desired undiluted Webb; new ones could scarcely be attracted by such a cumbersome device. Yet, after an interval of nearly a quarter of a century, an interval as great as that between Webb's own second edition and the Espin-Webb fifth edition, we find the very same fault repeated with all the aggravation due to the increasing number and importance of these footnotes. We must attribute the blame to the editor or the publisher, as we may easily acquit Messrs. Denning and Phillips, who provide so many of these important additions and corrections, of any choice in the form of their presentation. We feel that a great opportunity has been lost. A book of the kind being wanted, the appearance of this "revision" may very well discourage the production of a more consistent work.

The main part of this edition is very similar to the last, with which we dealt some twenty-four years ago. Some of our objections have been met by correction, and others ignored. The second volume, for which Mr. Espin took responsibility in the fifth edition, in which for the first time it was printed separately, has certainly benefited by the adoption of some of the suggestions then made by Mr. Lewis, whose hints are acknowledged in the preface, inasmuch as more recent measures of binary stars are now incorporated; in fact, many were specially observed for this edition.

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